Gas Journal

VOL. 296. 111th YEAR LONDON, MAY 20, 1959 No. 5001 PRICE 1/6

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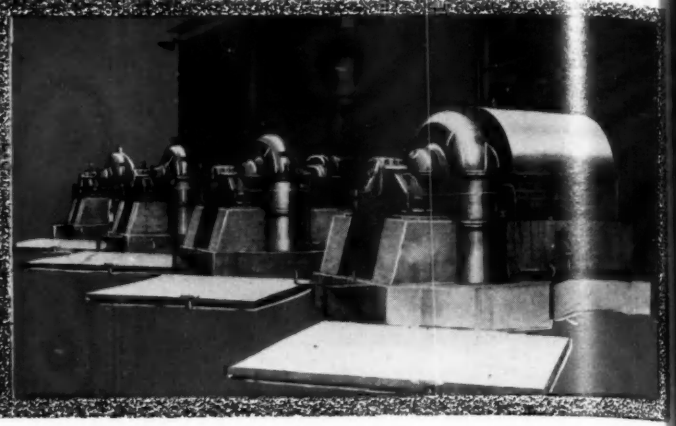

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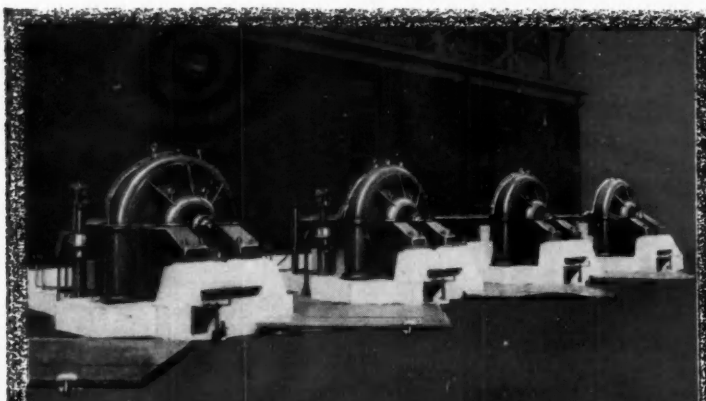

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PUBLISHERS' NOTICE, See Page 79, April 8, 1959

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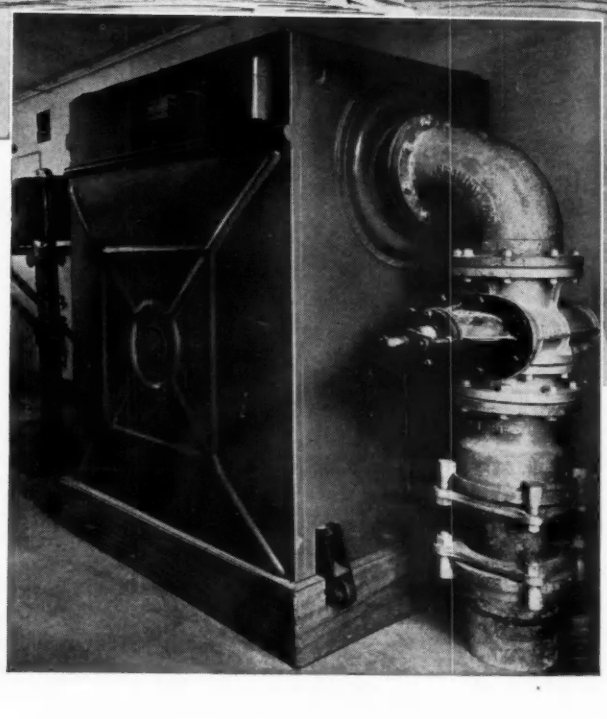

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Gas Journal

VOLUME 298. No. 5001 MAY 20, 1959. 111th YEAR

New Horizons for the Specialist Engineer

ANYONE who inspects a modern gasworks, whether he is a layman or gas engineer, must come away impressed by how great has been the change in the design of the post-war works compared to anything built 20 years ago. Production of gas has been concentrated in larger works during the last ten years as a matter of deliberate policy, and by production in larger gasmaking units in those works, it has as a consequence become possible to employ relatively fewer personnel to produce the larger quantities of gas.

To make certain that the high capital cost of the larger units is fully justified by at least an equal efficiency of operation, careful designing is necessary. To this must be added the need for complete control of the process, if the plant is to work to its design capacity at maximum efficiency.

Where very large plants with very high rates of throughput are concerned, some form of automatic control is needed which will correct any departure from the pre-set conditions of operations before the change has taken place. Otherwise in such plants where large quantities of materials are involved, a great deal of sub-standard product is likely to result. Good examples of such control systems are to be found at oil refineries where the different distillation fractions must be kept within extremely close limits.

The most unorthodox gasmaking plants that we have seen in the last few months have had at their central point a nerve centre in the form of a well equipped and well instrumented centralised control room. In both cases they did in fact resemble a refinery control room much more closely than is normally the case at even the most modern gasworks of more orthodox design. Control from such centres may either be automatic or remote controlled by the operator on duty. The choice of which it should be is largely governed by the need to provide the operator with something to do to ensure that his interest is maintained.

Since this new type of works must be at least as reliable as those with which most gas engineers are familiar, what are the underlying changes that have taken place to make it acceptable to an industry such as the gas industry where both Act of Parliament and economic necessity demand such high standards? The answer, we think, lies in the professions of chemical engineering and control engineering, both of which are among the youngest branches of professional engineering.

The post-war conditions under which industry has been working, the increase in competition from abroad and the need to produce new products at a cheaper price have demanded the best possible design of plant, the maximum scientific knowledge about the process being exploited and its optimum physical and chemical conditions. This has caused the need for a very much greater number of chemical engineers. In fact so great is the demand becoming that within the next few years it is likely to outstrip the supply unless measures are taken to provide suitable degree courses at our Universities of the necessary instruction at the technical colleges. This was stressed by Sir Hugh Beaver in his recent Presidential address to the Institution of Chemical Engineers. He pointed out that not only was Great Britain an industrial country but the most industrialised in the world. Competition was likely to become more intense in the next few years, and if this country hoped to maintain its present standard of living and its place as a first class power, its productivity and efficiency of production must be greatly increased to remain competitive.

The technical ideas needed to improve our production methods are the result of technological research which can only be carried out by highly trained personnel, who in turn must work with trained engineers. The conception and design of new chemical plant is the province of the chemical engineer just as the improvement of power application or mechanical handling of the products made are that of the mechanical engineer. Similarly the working out of the means of controlling the process, the measurement of slight changes in operating conditions and the transmission of the information to a central control panel, are the responsibility of the control engineer. So important has his share of modern process work become, that there are many who feel that his technology should be recognised as a separate branch of engineering.

In dealing with the aspect of control, the closing paper

of a symposium on 'Instrumentation and Computation in Process Development and Plant Design' by Sir Harold Hartley has, we think, much of interest to the gas industry of the future. This symposium was sponsored by the Institution of Chemical Engineers, the Society of Instrument Technology and the British Computer Society, so it covered a wide field. In his paper, Sir Harold spoke of the need to integrate all instrumentation into the original design of the plant and rather than add it later as an afterthought. He recalled that it was some 90 years ago that the theory of the stability of control systems was outlined by Clark Maxwell in his paper 'On Governors,' but nothing came of it until interest was revived by the study of servo mechanisms, and during the last war the subject received an immense stimulus from mathematicians concerned with artillery control and guided missiles. The simulation, too, of processes by analogue computors to calculate suitable parameters was extremely useful during the design stage of new plant. The importance of production in any industry of these specialist engineers is at once clear, and we think that the gas industry is alive to the advantages to be gained from their employment. In America the status of the chemical engineer appears to have been recognised earlier than in England, and a professional institution was founded there as long ago as 1908. It was not until 1922, however, that the British institution was founded. In spite of the delay much has been accomplished in Europe as well as in America in the last 50 years. Perhaps the election of Mr. W .K. Hutchison, Chairman of the South Eastern Gas Board, to the Presidency is the surest sign of our industry's interest in chemical engineering at any rate.

The Irish Meeting

THE annual general meeting of the Irish Gas Association is always intensely interesting because one is able to make some assessment of the current situation of a privately-owned gas industry that has the ill-luck to compete with a State-sponsored fuel—electricity—which has the natural advantage of being able to use peat turf and hydro-power.

As might be expected, it is a meeting that is even more interesting to observe at first hand; for when two or more people are gathered together in Ireland, however serious the purpose, the fun and wit, not to say the hospitality to any visitors, always assumes memorable proportions. This year's meeting at Tramore, Co. Waterford, was a champagne affair, not merely in the literal sense, with the highly genial Mr. J. O'Regan as President welcoming, among others, Mr. E. M. Edwards, President of the I.G.E., and Mr. Michael Hilliard, Parliamentary Secretary to the Minister for Industry and Commerce. Also present were Mr. Benjamin Haughton, Chairman of the City of Waterford Gas Company, and the Mayor of Waterford, Councillor Denis Fitzpatrick.

No general picture of the Irish gas industry can be assumed, of course, the geographical and population dispositions being far more varied than in Great Britain. But a very provocative hypothesis was put forward by Mr. T. L. Tallentire, of the South Western Gas Board. Asked by the Chairman to be 'provocative' in his paper, Mr. Tallentire certainly pulled no punches. During the past 25 years, he stated, the number of gas undertakings in Ireland had reduced from 73 to 42. While it was true that geographical circumstances prevented any wholesale integration, some measures of regional integration might have prevented the elimination of certain undertakings, and even at this late date might go far in revitalising the industry in parts of Ireland. Faced with keen competition from other automatic fuels, few, if any, small undertakings could provide service with a sufficiently high standard of efficiency and economy required to remain indefinitely in the field. 'The great chance of maintaining and expanding our position,' he said, 'is to be achieved by operating on the largest possible basis.'

While this was the central theme of Mr. Tallentire's paper he nevertheless struck a very positive note, emphasising the efforts of Governments in both North and South Ireland to attract and establish new industries, and summing-up by saying: 'All this industrial prosperity presents new and wider uses for fuel. . . . This position can be met and a substantial share of the available business can be gained for the gas industry if it provides an overall service to the home and the factory that is complete in every aspect . . a service which no existing consumer can afford to lose nor potential consumer afford to miss.'

Evidence of how new fields are being entered in the Republic was given in a succinct paper by Mr. A. L. Allen, of the Alliance and Dublin Consumers' Gas Company, who dealt with industrial and commercial load building. Considering that the paper had to be written at the last moment to replace one which could not be read at the meeting, Mr. Allen is to be congratulated on providing such a clear resumé. He revealed that his company's commercial and industrial load together represented 22½% of the total, and he added, with considerable modesty: 'In our relatively non-industrial city, we consider it progress.'

One subject arose in Mr. O'Regan's presidential address that was of direct concern to the United Kingdom. Pointing out that it had been traditional to buy coal from Great Britain, Mr. O'Regan said that trade recession meant a fall in the level of ocean freights, so that American coal became substantially lower in cost than supplies from Great Britain, and that coal surplus caused several European countries to reduce their prices. 'Great Britain, however, is not fully meeting competition and has thereby substantially lost her traditional Irish market.'

There are complaints that importing fuels instead of using the indigenous coal is bad for the national economy. But in the light of Mr. O'Regan's reminder, could we not be excused for considering it unfair to expect home industry to be more tolerant of uncompetitive prices than industry overseas?

Another item in Mr. O'Regan's speech of interest to the British gas industry was reference to the rapid growth in rural areas of L.P. gases as bottled gas. Many of the advantages of town gas were found in the bottled commodity, making the public so supplied 'gas-minded.' Many undertakings equipped premises with the necessary internal installation and received payment through a slot meter. The President suggested that the system should be considered where the laying of mains was uneconomic.

Personal notes

MR. H. H. BATES, Chairman of Benzole Producers Ltd., was elected President of the National Benzole and Allied Products' Association (N.B.A.) for a second term at the sixth annual general meeting recently. MR. F. A. JACKMAN, Managing Director of Carless, Capel & Leonard, Ltd., was elected vice-President, also for a second term. The Executive Committee was elected as follows: Dr. M. Barash, East Midlands Gas Board; Mr. W. S. Dixon, Dorman Long (Chemicals) Ltd.; Mr. C. M. Frith, South Yorkshire Chemical Works Ltd.; Mr. R. T. Hayes, United Coke & Chemicals Co., Ltd.; Mr. W. D. Holt, National Coal Board, East Midlands Division; Mr. C. J. Johnson, North Thames Gas Board; Mr. J. E. Jones, South Eastern Gas Board; Mr. C. N. Kemp, South Western Tar Distilleries; Mr. M. J. R. Lane, The Lincolnshire Chemical Co., Ltd.; Mr. W. A. Robinson, The Midland Tar Distillers Ltd.; Mr. A. Slater, The Staveley Iron & Chemical Co., Ltd.; Mr. C. J. Waller, Scottish Tar Distillers, Ltd. Mr. L. W. Blundell, of the North Thames Gas Board, and Mr. A. K. Steel of the National Coal Board, past presidents of the Association, were elected ex-officio members of the Executive Committee.

MR. A. H. NICHOLSON, General Manager, East Lancashire Group, North Western Gas Board, has been elected Chairman of the Manchester and District Section, Institution of Gas Engineers. He began his career in the gas industry as an articled apprentice in 1924. He then joined the Power-Gas Corporation for two years and from 1931 to 1935 was an engineering assistant with the Darlington Corporation undertaking. Mr. Nicholson then went to Bingley as deputy engineer and manager and in 1936 was appointed deputy engineer and manager, Colne Corporation undertaking, becoming manager the following year. In 1950 he was appointed general manager of the Blackburn Group, North Western Gas Board and in 1954 became General Manager of the East Lancashire Group. He has been associated with the I.G.E. since 1937. He served as secretary of the Manchester Section from 1949/57 and from 1949/50 also combined the office of treasurer.

THE EARL OF HALSBURY has been appointed to the board of Lancashire Dynamo Electronic Products Ltd., as Chairman. Lord Halsbury is vice-Chairman of Lancashire Dynamo Holdings Ltd., and also has a number of other board appointments with major industrial organisations. He was until recently managing director of the National Research Development Corporation, a position he had held since the Corporation was set up in 1949 to ensure the development and exploitation of inventions resulting from public research. Prior to joining the Corporation, Lord Halsbury had held a number of research and managerial positions in industry.

MR. PETER J. A. LUBBOCK, former publicity manager of Dewhurst & Partner Ltd., Hounslow, has recently relinquished this position to take up an appointment as Advertising Executive with Evershed & Vignoles Ltd. of Chiswick. Mr. Lubbock was previously publicity manager of Langley Alloys Ltd. and was for six years publicity officer with the Chaseside Engineering Co., Ltd., Hertford.

MR. CHARLES B. BROCKBANK, who has represented the Staveley Iron and Chemical Co., Ltd., of Chesterfield, in North Wales for the past 31 years, retired recently. Since 1939 he has worked from Colwyn Bay, but upon his retirement the North Wales area will be served by the company's Manchester office, from which Mr. Brockbank originally operated.

MR. T. C. BATTERSBY has relinquished his post as general manager of Watford Division, Eastern Gas Board, to become Controller of both Tottenham and Watford Divisions. The appointment is consequent upon MR. F. T. BROOKES, ex-general manager, Tottenham Division, Eastern Gas Board, becoming Deputy Chairman of the Board.

MR. E. L. WALLIS, Manager of the West Midland Gas Board's Bilston works, was last week elected President of the Wolverhampton and District Engineering Society for its 1959-60 session.

MRS. A. W. DELL, a member of the North Thames Gas Board Gas Consultative Council, has been appointed the first woman Chairman of Brentwood Urban District Council.

MR. F. D. DRAKE, a Director of Drakes (Engineers) Ltd., was appointed Chairman of the Ironfounders National Confederation and also vice-Chairman of the National Federation of Engineering and General Ironfounders at a meeting last month.

MR. R. O. RICHARDS, D.S.C., has been appointed Chief Engineer, design and development department of the Woodall-Duckham Construction Co., Ltd., in succession to Mr. F. S. Townend, who retired from the company recently after 36 years' service.

MR. PATRICK HARPER, former public relations officer with the East Midlands Gas Board, now Editor of the National Benzole Co., Ltd., dealer magazine, has been appointed Advertising Manager. He was with the East Midlands Board from 1950 to 1957.

SIR KELVIN SPENCER, KT., C.B.E., M.C., was appointed a Director of National Carbonising Co., Ltd., and of Rexco Research & Development Co., Ltd., at a recent meeting of the board.

Diary

May 22.—LONDON AND SOUTHERN JUNIORS: Westminster Technical College, London, S.W.1. Annual business meeting, 6.30 p.m.

May 28.—NORTH THAMES G.C.C.: City Hall, Westminster.

June 1.—WEST MIDLANDS G.C.C.: Gas Offices, Edmund Street, Birmingham 3. Council Meeting at 2.30 p.m.

June 2.—WOMEN'S GAS FEDERATION: Church House, Westminster. Annual General Meeting. 2.30 p.m.

June 2.—SOUTH EASTERN G.C.C.: Clarendon Hotel, Gravesend. Council Meeting at 11.45 a.m.

B.E.M. FOR TWO GAS MEN

Lord Mills, Minister of Power, has a word with (left) Mr. James Donelly, Assistant Distribution Superintendent, Northern Gas Board, and (right) Mr. Walter Henry Kerridge, District Fittings Foreman, Ipswich Division, Eastern Gas Board, after he had presented them with their British Empire Medals at Lancaster House, London.

Successful year for appliance sales

East Midlands Chairman at sales and service conference

THE year 1958-59 had ended as a successful one so far as appliance sales were concerned, said Mr. R. S. Johnson, Chairman of the East Midlands Gas Board, speaking at the eighth area sales and service conference in Leicester recently.

Mr. Johnson said: 'The simultaneous introduction of the Board's two-part tariff and high efficiency radiant/convector fire, have put us in a position where we can, without doubt, claim that our gas fires are cheaper to run than the stool bottom coal grate and advertise accordingly.

Progress with warm air

'Particularly with warm air have we made considerable progress in the past year,' said Mr. Johnson. 'Recent installations and firm orders on our books in the Sheffield and Rotherham Division total over 250. Sheffield Corporation have shown a great interest in these appliances and have placed their first orders for 188 installations. Within the next few months, this Division expects to have at least 500 warm air installations operating.

'There have been over 80 installations in the Notts. and Derby Division, where many private builders are including this type of heating in their specification for new houses.'

'Again, in the Leicester and Northants. Division, Leicester Corporation is interested and, at the present time, several warm air units are being built in new blocks of council flats in Leicester. Here, as in Lincolnshire, private builders are becoming aware of the necessity to install some form of central heating in their new houses, as an aid to selling and to keep abreast of the increase in comfort standards required by the buying public.

'The Board regards the development of these and other new methods of heating, together with the new flue systems, as being so important that a new housing centre is being set up in each Division The first of these, at Derby, was opened in April, and the others will follow during the next few months.

22,000 space heaters sold

'This year we have sold nearly 22,000 space heaters, of which 70% were fixed fires. Nearly 90% of all sales were new installations. These sales will, before long, have a significant effect on the end object of all appliance sales—an increase in domestic consumption, with all its advantages to the Board and therefore to our customers.

'Figures obtained from a market survey carried out in 1953 show that gas cookers and rings accounted for 86.5% of our domestic load, gas lighting accounted for 1.9% and space heating for only 1.4%.

'We are, therefore, entering a new market, and it is essential that we must re-adjust our thoughts on advertising, exhibiting and selling space heating appliances.

'I believe that in the not too distant future, space heating will become a major load, far removed from the insignificant 1.4% of a few years ago.

Backed a winner

'The next load which has shown such great progess is refrigeration,' said Mr. Johnson. 'Again, apart from the removal of credit control restrictions, the industry has done something to break into the refrigeration market. We certainly backed a winner by the introduction of the Gascold.

'During the eight year period from April 1950 to April 1958 we sold 9,438 refrigerators. In the last year alone we have sold 4,227. Our sales have been, and continue to be, limited to some extent by the availability of appliances. Later this year, production will have increased considerably and we can look forward to even bigger increases in sales.

'Sales of water heaters at 16,370 have only been exceeded once previously, and that was in 1954-55.

'Sales of washers and wash boilers remained quite steady. With one exception since 1950, annual sales ran between 20 to 26 thousand. This year we sold 23,000, an increase of 13% over last year.

'Nearly 68,000 cookers were sold during the year. Of these, 40,000 were sold in the second six months, after the restrictions were lifted. The total sales showed an increase over last year of more than 25% and I regard this as a satisfactory result, bearing in mind that from vesting date to the commencement of the year 1958-59 we had already sold 683,000 new cookers.'

Mr. Johnson stated: 'Over 61% of the year's sales were made during the last half of the year and, although I have indicated that the removal of credit control restrictions gave a considerable boost to our business, nevertheless, a great deal of progress has been made in the development of our local building activities, due to our own sales policy.

'Apart from the fact that the total appliance turnover of £3,332,000, which exceeds the boom year of 1954-55 by over £70,000, is a record year for this Board, there has also been a significant change in the appliances sold to reach this satisfactory figure.'

Four short papers were presented to the conference, Domestic and Commercial Cooking, by Mr. E. W. B. Dunning, Water Heating and Flueing, by Mr. C. H. Purkis, Space Heating, by Mr. D. R. Wills, and Watson House, by Dr. F. J. Eaton. All the speakers were from Watson House.

The conference was also addressed by Mr. J. J. Sloan, O.B.E., Director, Lewis's

PARKINSON COWAN GROUP ADDITION

THE Directors of Begwaco Meters Ltd. have announced that the company, which conducts an extensive business in the manufacture of gas meters at home and overseas, has concluded negotiations to become a member of the Parkinson Cowan Group. A majority of the issued capital of 210,500 £1 shares has been acquired by Parkinson Cowan Ltd. from their own resources.

Juniors visit White Lund

THE White Lund works of the North Western Gas Board at Lancaster was toured by the Manchester District Junior Association of Gas Engineers recently, after which the Chief Technical Assistant on the works, Mr. F. S. Grey, presented his paper, 'Commissioning of Intermittent Vertical Chamber Ovens.'

Sc.G.B. first-aid teams to visit London

THE Scottish Gas Board's representatives in the inter-area first-aid competition to be held in London in September, will be the Edinburgh No. 1 team in the men's section, and the Glasgow team in the women's section.

These teams won the Scottish area finals which were held at Granton gasworks, Edinburgh, recently. Altogether 33 teams entered for this year's competition, compared with seven teams in 1956, and it was thus necessary to hold eliminating competitions in the Glasgow and Western, the Edinburgh and South-Eastern and the Central Divisions. Ten teams took part in the finals. Placings were: Male Competition: Edinburgh No. 1; Largs; Greenock; Perth; Edinburgh No. 2; Alloa; and Inverness. Female Competition: Glasgow; Edinburgh; Alloa.

Mrs. Sydney Smith, wife of the Chairman of the Scottish Gas Board, presented the Challenge Shield and plaques to the men's team, and the rose bowl and plaques to the women's team.

Speaking at the luncheon following the competition, Mr. Sydney Smith said that progress made in first-aid training throughout the Board's area over the past three years, was worthy of the highest commendation, and reflected the 'inspiring leadership of the Board's Medical Officer, Dr. D. G. Waddell.

'In the past twelve months,' said Mr. Smith, 'more employees than ever have gained certificates: 393 gained first certicates and 186 renewal certificates, making a total of 579. This brings the total number of employees holding current certificates to 985 and this is only 15 short of the target of 1,000 which I suggested three years ago we might aim to achieve in five years. Since a further 56 employees are still attending classes or awaiting examination, we can be assured that this target will be achieved in a remarkably short space of time.'

Gas industry commands unique loyalty

Reason for success of nationalisation, says W.M.G.B. Chairman

THE Chairman of the West Midlands Gas Board, Mr. G. le B. Diamond, said there could be no doubt about the success everyone had made of nationalisation, although some had faced it with mixed feelings. The success was due, he said, to a loyalty that was almost unique. He was responding to a toast proposed by Mr. J. S. Fox-Andrews, newly-appointed Chairman, at the Coventry meeting of the Midland Section, Institution of Gas Engineers.

Proposing the toast of the East and West Midlands Gas Boards, Mr. Fox-Andrews said that both the Chairmen were very good friends of the Midland Section of the Institution. They were among the most regular attenders at meetings and joined in discussions, thereby stimulating the work of the Section.

Reminder

The senior vice-President, Mr. S. K. Hawthorn, said it was as well to be reminded of the anxieties of ten years ago when the industry was at its wits end to meet the demand for gas and coke. 'At the present time we are in a different position in that we are meeting a slight slump in gas sales and a very big slump in our coke market,' he said. 'The falling sales of coke are the industry's biggest problem at the present time. The big increase in the sale of coke expected following the clean Air Act had not materialised and to make matters worse, industry is using less coke and more oil.'

Mr. F. Harvey, junior vice-Chairman, said that it was the experience in the West Midlands that if only 15% of consumers were put into a smokeless area there would no longer be a coke problem—or if there was, it would be a problem of shortage.

Changing world

Mr. H. S. Cheetham, a vice-President of the Institution, referred to the many famous gas engineers who had associations with the Midlands. He said that the section had done much work in providing a platform where papers could be presented and discussed. This was of the utmost importance in a changing world where new processes and new plant were under consideration.

The immediate past chairman, Mr. F. H. Bate, said that members of the Midlands section were proud to be part of an organisation like the Institution which was having such an influence on the gas industry, not only in this country but throughout the world.

The meeting decided to make a 50 guineas donation to the benevolent fund of the Institution, the cheque being presented to Mr. Cheetham by Mr. Bate.

During the meeting Associate Membership examination certificates were presented to Mr. D. J. Chapman, Mr. P. S. Thomas, Mr. R. A. Springthorpe, Mr. M. E. Lawrence, Mr. N. J. Yiend, Mr. C. F. Lewis and Mr. W. R. Jones. Another recipient, Mr. J. M. Keffin-Hughes, was unable to be present.

Officers elected for the year 1959-60 were:—Chairman, Mr. J. S. Fox-Andrews; senior vice-Chairman, Mr. S. K. Hawthorn; junior vice-Chairman, Mr. F. Harvey; Honorary Secretary, Mr. D. K. Green; Honorary Treasurer, Mr. J. H. Wainwright; Auditors, Mr. F. Grocott and Mr. E. W. Pickering; ordinary members of the management committee, Mr. H. Moys, Mr. L. W. Jarrett and Mr. P. E. Gallaher.

It was announced that a paper presented to the section by Mr. E. W. Pickering, 'Clean Air and Clean Water,' was being put forward to the Council of the Institution for consideration for the Silver Medal.

The meeting was preceded by a lunch at the invitation of the Chairman and members of the East and West Midlands Gas Boards.

Among the guests were: Dr. W. T. K. Braunholtz, O.B.E., Secretary of the Institution of Gas Engineers; Mr. J. Swan, Secretary of the West Midlands Gas Board; Mr. A. Gwynne Davies, member of and Secretary to, the East Midlands Gas Board; Mr. D. E. D. Kennedy, Chief Executive Officer of the Ministry of Power, Birmingham; and Mr. A. H. Pinder, Group Manager of N.I.F.E.S., Birmingham.

RADIATION ANNUAL REPORT

MR. W. DONALD KING REVIEWS 1958

PURCHASE tax and credit restrictions affecting certain industries in particular have been used by successive Governments as a means of implementing their changing economic policies and they do not appear to have a full appreciation of the problems which their activities create, said Mr. W. Donald King, Chairman of the board of directors of Radiation Ltd., in his annual statement circulated recently.

Referring to trading conditions during 1958, Mr. King said, 'At the beginning of the year under review, all restrictions were in full force; by April purchase tax was reduced and the volume of trade increased; in October all restrictions were removed and then our volume of trade was limited by the ability of the factories to deliver the products. While we are most grateful for the removal of restrictions and the reduction in purchase tax, it is necessary to repeat with emphasis that the frequent changes in trading conditions cause tremendous difficulties both to us as manufacturers and to all the channels of distribution through to the ultimate user.'

Success with cookers

Speaking of the group's Gas Division, Mr. King said: 'Last year I informed stockholders that we had introduced new gas cookers which, at that time, although having had a good reception, had not contributed fully to the group's income. During 1958, the demand for these new cookers increased substantially, and although the volume being delivered to area boards reached a peak during the last quarter of the year, we were still unable to meet demands. Our results, therefore, have been improved as a result of the sale of these cookers. Further new models will be introduced during 1959.'

Mr. King said that the demand for gas water heaters, both instantaneous and storage types, was heavy, and this was helped by the reduction in purchase tax as well as the removal of hire-purchase restrictions. Deliveries during 1958 were at a high level and contributed substantially to the group's income.

The 1958 season for space heaters was very much better than the previous year, with the result that sales through Bratt Colbran Ltd., and Radiation Group Sales Ltd., increased.

Activity in the heavy duty catering equipment industry continued at a high level and further new designs were being introduced.

Difficulties in meter industry

'Trading in the meter industry remained difficult and continues to be so,' said Mr. King. 'The meter company is developing and manufacturing accessories which are extensively used by our main production units.

'The Solid Fuel Division has had a successful year, particularly with the Parkray convector series of fires,

A dividend of 6% less income tax on the ordinary capital in respect of the year ended December last has been recommended by the directors of Radiation Ltd.

The balance of profits before taxation is £1,020,912, which, after taxation, becomes £483,852. After taxation over-provided for in previous years and the balance brought forward from previous years, the amount available for appropriation is £1,016,736. Transfer to fixed assets replacement reserve, dividend paid on 6% cumulative preference stock for the year 1958 and the proposed dividend on ordinary stock for the same year amounts to £278,941, leaving a balance carried to balance sheet of £737,795.

These figures include the results of the Parnall (Yate) Ltd., group for the year under the terms of the merger.

Leamington Spa conference

Future policy of the gas industry

B.G.S.A. GENERAL SECRETARY SAYS CONTINUE NATIONALISATION

LAST week the 'GAS JOURNAL' published the presidential address of Mr. W. E. Webb at the annual conference of the British Gas Staff Association at Leamington Spa. This week we present a review of some of the other business transacted at the conference.

Mr. G. le B. Diamond, C.B.E., Chairman of the West Midlands Gas Board, said that a national fuel policy had, on frequent occasions, been called for by staff associations and others. The most general demand was for Government pronouncement or direction to ensure the maximum use of the indigenous coal supplies. The Ridley Committee had examined all the factors and concluded that Government interference in the choice of fuel would lead to inefficiency and would be most difficult to enforce. There were, however, many enlightened people who questioned the wisdom of such a vast expenditure on the provision of power stations to meet peak load requirements, largely for space-heating. In America, where natural gas enables keen competition, the space heating load was taken by gas, leaving electricity to cater for lighting, power and specialised applications of which electricity was paramount. It was clear from the vast use made of gas wherever it was cheap and abundant, that there was nothing wrong with gas as a fuel, but only the price was holding the industry back in this country.

Space-heating

Despite the lugubrious prophets of woe, of whom Mr. Kelf-Cohen was one of the leading exponents, Mr. Diamond had great faith in the future of the industry, which he said must now win a larger share of the space-heating load.

'Now that the Clean Air Act is giving us the opportunity, we must find ways of promoting the use of gas as an efficient and economical fuel for central heating, for the new warm-air duct systems, as well as for intermittent heating in bedrooms, halls, etc. We should not allow to slip from our grasp the industry's rightful share of the increased business which the rising standard of living in this country is at present creating. I am an optimist. I believe the industry is sound and the ingenuity and skill of our gas appliance manufacturers are placing in our hands apparatus which is unsurpassed in performance and appearance. We now have to go out into the highways and by-ways and sell additional apparatus to existing consumers, and I believe that the gas poker is the spearhead of this attack. Your association have been in the forefront in recognising the need for good selling and for the status of the salesman to be raised and in this you are right, for our future success depends upon enterprise in this direction.'

Mr. Diamond concluded his address by reviewing the trend of probable future developments. He spoke of the importation of liquefied methane gas from America and praised the courage and enterprise, the first rate engineering ability, which had made possible this first shipment.

Salary negotiations

The General Secretary, Mr. F. C. Henfrey-Smith, introducing the annual report, traced the effect of the salary negotiations since the first national salary scale was introduced in 1950. On redundancy and compensation he said 'We must first give credit to the management that it has so planned its vast re-organisation during the past ten years that redundancy of established staff has not so far been a great problem. But now the Gas (Staff Compensation) Regulations 1949 had expired and the staff negotiators were endeavouring to reach agreement on new compensation terms. No such agreement had yet been reached, however, as the staff negotiators considered quite unrealistic the Gas Council's present offer which would limit compensation to those under age 45 to 13 weeks salary. Steps may be taken to to ensure no loss of accrued pensions, but the satisfactory settlement of a a scheme for providing adequate compensation for loss of office would be a major issue.

'I am personally convinced that the gas industry has a great future and will achieve increasing prosperity,' he said, 'But it will undoubtedly face a difficult period during the next ten years or so, while the new production processes are being developed. The B.G.S.A., whose fortunes are so closely linked with those of the one industry, may also itself have to face a difficult period but eventually, given the intelligent and active support of its members, it will prove that its belief in industrial unionism was fully justified.

'The gas industry is on the verge of tremendous developments. The leaders tell us that the future pattern will be the manufacture of gas by the new high pressure processes at a few large stations on or near the coalfields using all types of coal, and by production plants near the oil refineries, feeding gas into a national grid, which would also take coke oven gas and methane. This would mean the gradual closing of conventional gas works. We know also of the development of electronic office systems with centralised accountancy. I would mention in passing that we, as an association, have played our part in avoiding the implementation of a suggestion that gas and electricity should jointly deal with meter reading and accounting. These vast changes in the industry are designed to produce gas at a lower price which I hope will ultimately discourage the use of solid fuel in domestic premises altogether.

Mr. T. R. Robson, presenting the accounts, paid warm tribute to the unflagging voluntary service given by laymen to the association at all levels.

One of the most important debates was on a statement on future policy for the gas industry, which the 1958 conference had instructed the National Council to prepare.

The General Secretary, presenting this report said, 'The adoption of a fuel policy has for some years been demanded by the B.G.S.A. Let us, however, be quite clear as to our meaning. We have said previously that we support freedom of choice and fair competition but believe that the Government should co-ordinate the policy of the fuel industries in the interests of clean air and to seek to promote the use of the fuel best suited for each purpose, by ensuring that the public is given full and objective information on fuel efficiencies, etc. We also consider that in the development of the fuel industries, more regard should be had to the capital costs involved, especially for peak period demand.

'One point I must make quite clear. We are prepared to support the continued use of coal as the major basic raw material for gas making, but only if the price is right. While we would be the last to deny coal miners adequate rates of pay we believe that the coal industry must thoroughly re-organise itself as a competitive industry, as we in the gas industry have found it necesary to do in the past ten years. The coal industry, if it wants our support, must see to it that the price of coal to us is such as will allow the gas industry to sell gas in competition with electricity and oil. That is inherent in the B.G.S.A.'s support of the continuued use of coal as the main raw material.

Nationalisation

'We believe the gas industry should continue as a nationalised service and should remain separate in its organisation. We foresee eventual centralised production and a national gas grid and accept that this may be essential to provide a cheap fuel. While we agree that the industry must also use other raw material than coal, we doubt the political advisability of relying too greatly upon imported fuels, such as methane or oil. We hear with purturbation, the suggestion that fourteen 30,000 ton tankers could bring in enough liquified methane to supply all the present gas needs of the country.'

CARBONISING PLANT 'BEHAVED SPLENDIDLY'

IN spite of difficult times, in which business had become more and more competitive, and orders more difficult to obtain, the Retford engineering firm of W. J. Jenkins & Co. Ltd., had been able to maintain a satisfactory turnover for the year but with an even lower profit margin than in the previous year.

'That, however, is the experience throughout industry as a whole, and is not confined to this country alone.' Mr. J. S. Jeffrey, Chairman of the board of directors, told employees when he addressed them following the annual meeting of the company recently.

Mr. Jeffrey said: 'During the year the carbonising plant at Garston, Liverpool, has been put to work. The first bench was gas-making in September last, the second in December, the third in January and the fourth is due to start up sometime later this year.

Largest single contract

'Apart from teething troubles, always present on these occasions, the plant has behaved splendidly, and I do sincerely congratulate all of you—those in Retford as well as those in the field, engaged in the erection and starting up—on such a satisfactory completion of the largest single contract W. J. Jenkins have ever been engaged upon. It is a noteworthy achievement.

TWO SCOTTISH WORKS TO CLOSE

THE gasworks at Ardrossan and Saltcoats in Ayrshire will cease to manufacture gas shortly and will become holder stations for gas supplied through the West of Scotland grid.

Mr. E. G. Smith, deputy general manager of the Glasgow and Western Division of the Scottish Gas Board, says: 'The manufacture of gas will cease at both Ardrossan and Saltcoats at or around May 31, when a bulk supply of gas will be available from the grid system now being installed. The gas will be manufactured at Irvine and Kilmarnock and later supplied from the West of Scotland grid, of which the present system now being installed will form a part.

Measure of security

'The West of Scotland grid will draw gas from coke ovens and ultimately from the new Lurgi plant being installed at Westfield, Fife. These arrangements will permit a further measure of security against breakdown as gas can be interchanged between districts and areas within the grid, a very important factor to domestic, commercial and industrial consumers.'

Plant at Ardrossan gasworks is the most modern in the area. In 1948 a modernisation scheme was completed after two and a half year's work involving the provision of new vertical retorts. The latest gasworks in Saltcoats were inaugurated in 1931.

W.G.F. meets at Skegness

500 MEMBERS ATTEND AREA CONFERENCE

NEARLY 500 members, representing all the eighteen Branches of the Women's Gas Federation in the East Midlands Gas Board area, met at Skegness recently for an area conference.

Delegates and guests were welcomed to Skegness by Councillor F. Swaby, Chairman of the Skegness Urban District Council. Following this welcome, Mr. R. S. Johnson, M.B.E., Chairman of the East Midlands Gas Board, addressed the delegates.

Clean air a social matter

He said how pleased Mrs. Johnson and he were to meet the members of the Women's Gas Federation at the first conference since he became Chairman of the Board. Speaking about the Clean Air Act, he said: 'It was a social matter and one which we should accept as an obligation whether or not the Act will eventually apply to the area in which we live.' Mr. Johnson touched on the findings of the Weir Committee in connection with the W.G.F. and E.A.W.

He concluded by saying: 'I would wish you all to know that we, of the Board, follow your activities with the greatest interest. We think quite naturally that you have chosen wisely in associating yourselves with the gas industry and it is our hope and wish that your branches in our area will continue to prosper and to be a source of interest and inspiration to all its members.'

Mrs. G. Evershed, who took the chair for the morning session, responded to Mr. Johnson on behalf of the Women's Gas Federation.

Entertaining talk

The speaker for the morning session was Mr. L. F. Randall, Commercial Manager of the East Midlands Gas Board, who delighted the members with his entertaining talk entitled 'W.G.F.' He gave them much of interest to discuss on returning to their branches.

The first speaker in the afternoon was Miss Noel Streatfeild, who addressed members on 'An Author's Life.' This was a talk on Miss Streatfeild's own life and experiences, which illustrated how and why she became an authoress.

The final session of the conference was Question Time. The questions, which had been sent in by branches, concerned appliance design, coke, and the Women's Gas Federation. The panel, which answered these questions most ably, consisted of Miss J. Frith, Mr. J. L. Anstey, Sales Director, Parkinson Cowan Ltd., Mr. J. Cooper, Technical Officer (Utilisation), East Midlands Gas Board, under the Chairmanship of Mrs. G. Evershed.

A vote of thanks to all the participants at the conference was given by Miss F. Bonas, member of the East Midlands Gas Board Consultative Council, Chairman of the W.G.F. branch, Derby, and a member of the W.G.F. National Executive.

HOME ECONOMISTS ASSOCIATION A.G.M.

MORE than 100 members of the Association of Home Economists attended the fifth annual general meeting last month at Queen Elizabeth College.

Miss Maywen Godby, of the Gas Council, and Chairman of the Association, was in the chair and in her opening remarks referred to the work done by the Executive Committee throughout the year. Miss Godby said the Association had become better known, both nationally and internationally, and that there had been a good increase in membership.

The ninth International Congress at the University of Maryland, U.S.A., dominated the activities in the home economics world in 1958 and 27 members of the Association attended.

Following this, a very successful week-end conference at Keeble College, Oxford, was arranged.

ONIA-GEGI PROCESS PLANT FOR JAPAN

AN installation for catalytic and cyclic cracking of heavy oils, operating under the Onia-Gegi process, will be constructed at the gasworks of Yaisu, a small fishing harbour about 60 miles from Tokyo in Japan. The first stage of construction will consist of a unit with a daily production of 113,000 cu. ft. of municipal gas, and will start operation in the winter of 1960. Construction of a second unit will begin in 1960.

Both units were ordered by the Tokai Gas Company, and will be constructed under licence from the French patent holder by the British and Japanese licence holders of Société de Construction d'Appareils pour Gaz à l'Eau et Gaz Industriels.

CONSERVATION PLANT TO COST £8 MILL.

COMPANIA SHELL DE VENEZUELA has started building its first gas conservation plant in the Lake Maracaibo area. The plant, which is being erected at a cost of about £8 mill. in the vicinity of Tia Juana, Zulia State, and in the centre of Block 1 of the company's concessions in the lake, will be known as Lagogaz No. 1, and have a capacity of 5 mill. cu. metres of gas a day.

Manchester Section Chairman gives 'Retrospect and Prospect'

OFFICERS ELECTED FOR NEW SESSION

'RETROSPECT and Prospect,' a detailed review of the achievements of the gas industry during the first decade of nationalisation and the outlook for the next ten years, was the subject of the address by Mr. A. H. Nicholson, General Manager, East Lancashire Group, North Western Gas Board, on his election as chairman of the Manchester and District Section, Institution of Gas Engineers, at Manchester recently. Mr. Nicholson succeeded Mr. J. G. Tilley, General Manager, Huddersfield-Halifax Group, North Eastern Gas Board.

In his address, Mr. Nicholson said: 'Those of us who are older, know that this industry has been "written off" on many occasions by misinformed and sometimes biased opinion, but it has always found the solution to its problems. Once again it is in the spotlight of controversial comment and speculation on its future. It is, therefore, important that information concerning its activities should be made as widely available as possible. In this respect the excellent publicity which is now given by the technical Press and responsible national Press to the public utterances of the industry's leaders and the printed papers, and informed articles which are regularly presented by technical and non-technical contributors alike, is performing a very valuable function. It does, however, make the choice of a subject and the preparation of an address a little difficult insofar as it is not easy to find something to say which has not been said many times before, and reported for all to read. There are, however, some things which are worth repeating so that none of us shall be in doubt and through us the public generally of the magnitude and value to the nation of the work which has been accomplished during the past ten years, and of the economic and social excellence of this industry's fuel service.'

Officers elected

Other officers elected were: Senior vice-Chairman, Mr. W Hodkinson, Deputy Chairman, North Western Gas Board; Junior vice-Chairman, Mr. N. C. Sturrock, General Manager, York-Harrogate Group, North Eastern Gas Board; Secretary, Mr. J. Castle, General Manager, Liverpool Group; Treasurer, Mr. A. Harrison, Sales and Service Manager, Manchester Group; Auditors, Mr. J. A. Seabrook and Mr. H. B. Gidlow. Committee: Mr. R. J. S. Thompson, head of the gas and chemical engineering division, W. C. Holmes & Co. Ltd., Mr. B. Thorpe, Works Engineer, Neepsend works, East Midlands Gas Board, and Mr. J. Wilson, General Manager, Manchester Group.

Mr. D. P. Welman, chairman, North Western Gas Board, said it was customary for the chairman of the board in which the new section chairman was engaged, to be the first to congratulate him. In doing so, he offered to Mr. Nicholson whatever facilities he required from the North West Board to prosecute the work of the section.

Improving position

Mr. Welman said the industry faced one or two difficult years, but if commonsense prevailed he did not think the period would be any longer. During that time they had the most important task of holding firmly and improving the industry's existing position against odds, so that they would be ready, when the time came, to really go ahead and make the most of opportunities that would manifest themselves in the next few years. Mr. Nicholson would be chairman of the section during the first year of this important holding period.

Mr. Nicholson's first duty was to present to Mr. Tilley the past president's medallion and a gold wristlet watch as a token of the high esteem in which he was held by his Manchester section colleagues.

In acknowledging the presentation, Mr. Tilley paid tribute to the work of the section secretary, Mr. J. Castle, his assistant Mr. W. Holcroft, and the help he had received from the chairman and members and colleagues in the North Eastern Gas Board. Mr. Nicholson served the section from 1949-57 as secretary, and it was fitting he should now be elected to the highest office the section could offer, he said.

In his report as district member of the Council of the Institution, Mr. Tilley referred particularly to the work of the benevolent fund. He said that although 76.8% of Manchester section members were contributing, there was room for improvement. He hoped both new and existing subscribers would use the covenant scheme which enabled the fund to obtain the benefit of income tax paid. In view of the reduction in income tax rates, the amount available to the benevolent fund by this scheme would be slightly smaller, and he urged members to bear this in mind when making their subscription.

The meeting agreed to make a donation of 50 guineas to the benevolent fund. Dr. W. T. K. Braunholtz, O.B.E., Secretary I.G.E., expressed thanks on behalf of the benevolent fund committee of management.

Appointments confirmed by the meeting were: Mr. A. H. Nicholson, District member on the Council of the Institution for 1959-60; Mr. J. Grayston and Mr. A. Cole, representatives on the Councils of Manchester and District and Yorkshire Junior Gas Associations respectively; Mr. F. Litler, Mr. W. B. Harrison and Mr. H. H. Thomas, representatives on the Lancashire District Gas Education Committee; Mr. N. C. Appleyard, Mr. J. G. Tilley and Mr. J. M. McLusky, representatives on the Yorkshire District Gas Education Committee; Mr. H. Jack, representative on the Yorkshire Divisional Council, National Society for Clean Air; and Mr. W. F. S. Howell, representative on the North West Divisional Council, National Society for Clean Air.

Mr. Tilley welcomed the following new members: Mr. H. G. Davison, Station Engineer, Chester and Ellesmere Port, Wirral Group, Mr. J. A. Nauen, Project Engineer, Woodall-Duckham Construction Co., Ltd., Mr. L. R. Mather, Deputy Station Engineer, Macclesfield, and Mr. A. S. Horner, Station Engineer, Wallasey.

Associate Membership examination certificates in gas engineering were presented to five students by Mr. H. Johnston, Chief Engineer and a Member of the North Eastern Gas Board, who also presented certificates in gas engineering (manufacture) to Mr. P. N. Appleyard, of Harrogate, Mr. A. Bushell, Mr. G. A. Thompson, of Stretford, and Mr. R. Forster, of Hull, and a certificate in gas engineering (supply) to Mr. T. R. Keys, of Leeds.

SIR WALTER SCOTT ONCE SAT HERE

THE 151st branch of the Women's Gas Federation has been formed at Galashiels in unusual circumstances.

The chair used by Mrs. Patricia Maxwell-Scott in presiding at the meeting was the one used by her ancestor Sir Walter Scott when he was chairman of the Edinburgh Oil Gas Company in 1824. This chair was loaned for the occasion by the Edinburgh Corporation Libraries and Arts Committee, and is part of the Sir Walter Scott collection in the Huntly House Museum, Edinburgh.

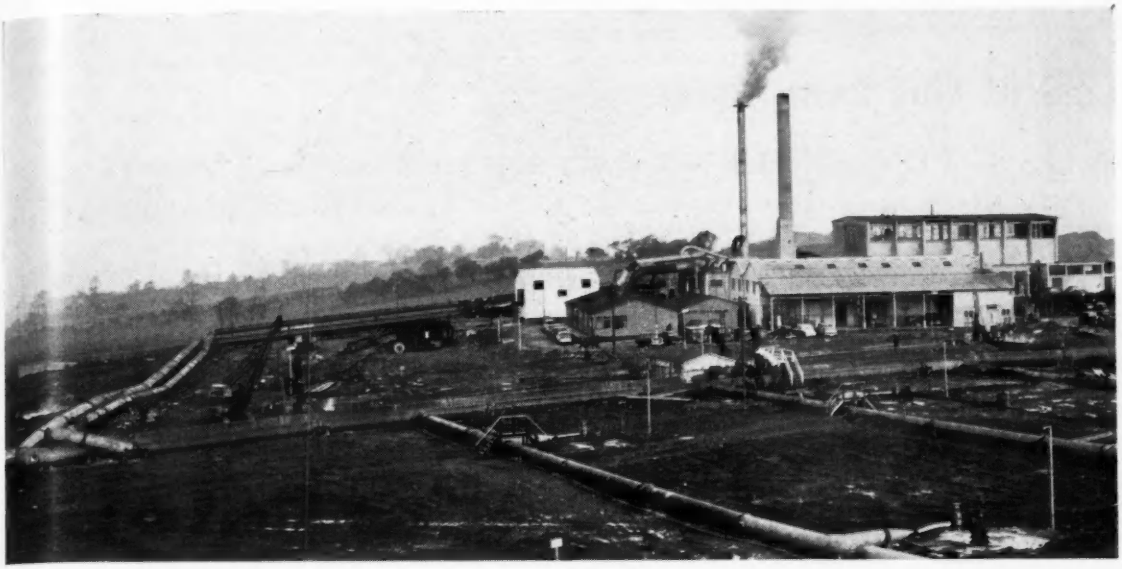
Abbotsford House, the mansion built by Sir Walter on the banks of the Tweed, was probably one of the first houses in Scotland to use gas for illumination, Sir Walter having had a private gas plant installed. This house is still lit by gas, and has gas for domestic hot water, refrigeration, cooking and space heating.

The proceedings were opened by Mr. G. Cox, Deputy General Manager for the South Eastern Division of the Scottish Gas Board, who, in asking Mrs. Maxwell-Scott to take the chair, stated that she could almost be said to have an inherited right to the position.

Chairman of the new branch of the W.G.F. is Mrs. A. S. Wilson, and the secretary is Mrs. A. McBride. It is understood that Mrs. Maxwell-Scott has agreed to be hon. President.

Radio vans for Swindon

SERVICE vans equipped with radio telephones are expected to be introduced to Swindon (Wilts.) and neighbouring districts, a meeting of Swindon Local Committee of the South-Westen Gas Consultative Council was told recently.



Power Station Operates on Gas

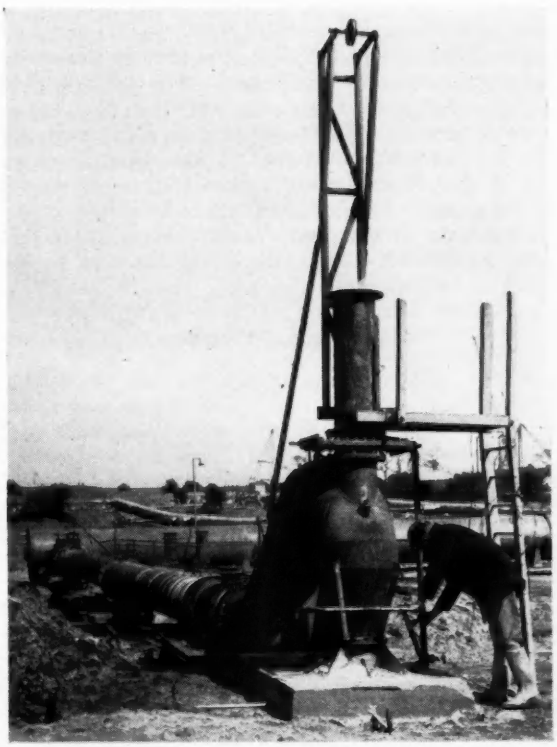
A 3.75 MW power station is now operating from gas produced at the underground gasification project developed by Humphreys & Glasgow, Ltd., for the National Coal Board at Newman Spinney, near Chesterfield.

An entirely new system is being used whereby a shaft was sunk to the coal seam and a gallery driven horizontally, from which boreholes were drilled within the coal seam for distances up to 450 ft. The drilling of these boreholes itself represents a considerable achievement, since the seam is only some 27 in. thick and the holes are 14 in. in diameter. Vertical holes were drilled from the surface to intersect the horizontal boreholes at the ends remote from the gallery. Making the accurate intersection between these vertical holes and the horizontal holes 200 ft. below was another notable achievement.

Other boreholes were drilled from the surface to intersect the gallery for primary admission of air to the system. Secondary air inlet boreholes were also prepared to be brought into use if required as gasification proceeds. When the system was completed, ignition was started in the gallery by 'bonfires' of coal and timber ignited electrically from the surface.

Air blown down the boreholes into the gallery brings about a gasification reaction, the gases so formed travel along the boreholes within the seam and back to the surface through the vertical uptakes, and thence through surface mains to the power station built by the Central Electricity Generating Board.

In spite of the successful outcome of these experiments and the completion of this pilot plant project, the National Coal Board for economic reasons is abandoning its original scheme of exploiting underground gasification on a larger scale, and will cease operating at Newman Spinney on June 30, after which the plant will be dismantled and the site returned to its former use as agricultural land. This is naturally a great disappointment to all concerned, since it had been hoped by the contractors that the present plant might be used as a prototype from which to undertake similar projects anywhere in the world, where coal seams within a suitable depth of the surface, but uneconomic to mine, could be gasified *in situ*. The gas obtained would be used for electric power generation and would be fully competitive with the cost of power generated from steam raised from coal mined by orthodox methods.



One of the connections bringing the gas to the surface.

From the Chairman's Address to the Midland Section, I.G.E., presented at Coventry, May 1, 1959.

Loss of Gas from Mains

By J. S. FOX-ANDREWS, A.M.I.Mech.E., M.Inst.Gas E., M.Inst.F.,
DEPUTY DIVISIONAL GENERAL MANAGER, NOTTS. AND DERBY DIVISION, EAST MIDLANDS GAS BOARD.

IT is common knowledge that a small quantity of gas leaks from gas mains systems and the extent of this leakage depends largely on the average age of existing mains, coupled with the ability of the undertaking to replace old mains with new mains, and on the extent of ground movement.

Statistical information shows that the liability of cast iron pipes to break increases with age (probably due to less reliable forms of construction in earlier years) as the following figures for the Notts. and Derby Division during 1959 indicate:—

Age—Years	1–10	11–20	21–30	31–40	41–50	51–60	61–70	71–80	81–90
No.—Breaks	35	30	81	73	173	88	32	5	1

I am unable to give a reliable figure for the length of mains laid during each of these ten-year periods and some reservation must therefore be placed on the figures without this information. Nevertheless the trend is obvious.

Most of us are aware of mains still in use which are more than 60 years old, although much work has been done to replace them. The great majority are still sound, but not all leaks from mains are discovered as soon as the damage occurs and it follows that there is a greater liability for gas to be lost from an old mains system than from a newer system. It is our experience that more leaks occur in pressurised mains than in low pressure mains. It will generally be found that less gas is lost from a mains system in a highly built-up district than from a mains system of comparable age laid in ground of a similar subsoil and stability serving a more widespread district, for the obvious reason that leaks are more quickly noticed and reported by the public in built-up areas.

Long-sleeved Couplings

It goes without saying that mains laid in unstable ground, such as occurs where mining is active, are bound to be broken more frequently, and while it is possible to reduce this by inserting long-sleeved couplings, these breakages cannot be eliminated and little can be done to reduce the risk of damage to existing mains in subsidence areas. This is a major problem in the Midlands, and particularly in the Notts. and Derby Division where much active mining is in progress under the control of the East Midlands Division of the National Coal Board.

We are all aware of this problem and a satisfactory means of dealing with it has long been sought. In the Notts. and Derby Division we have been faced with a steady increase in unaccounted-for gas and some time ago an endeavour was made to determine the extent to which this was due to leakage by examining the gas output to small districts from holder stations during periods of minimum output, and also by isolating parts of larger districts and metering the flow of gas. The information obtained by this method was too nebulous to be useful because there were always signs of appliances in use whatever the hour of the day or night; however, there was a tendency for the rate of flow at minimum periods of consumption to be higher on the older mains systems than on the newer ones and the following are examples:

Night flow tests between 1 and 2 a.m., July 3, 1955.

Age of system (years)	Locality	No. of consumers	Mining subsidence	Unaccounted for per consumer per hour
30	Bulwell Hall Estate	765	Slight	0·117 cu. ft.
23	Newlands Mansfield	174	Fairly Heavy	0·385 cu. ft.
5	Clifton	3,200	None	0·0385 cu. ft.
33	Church Warsop	446	Heavy	0·435 cu. ft.

This was to be expected, but the difficulty has always been to locate the point where leakage occurred. At this time we considered the possibility of using radioactive isotopes, but fortunately about this time the method, which had been well tried in the mining industry for detecting the presence of gas, of obtaining small samples of the atmosphere under the ground surfaces and passing these over a hot wire, came to our attention. Our first experiment with it was made two years ago in Swadlincote when 36 miles of main were surveyed and, as a result, 219 leakages, including 22 broken mains, were discovered and repaired. Unfortunately, the supply to this district was not separately metered at the time, but from observation, it appeared subsequently that the rate of flow out of the holders at periods of minimum consumption was appreciably reduced. Swadlincote is built over an area of active coal mining and it is interesting to learn that during the next few years a further 6 ft. of coal will be removed. The following repair work was carried out during a similar period of six months before and after this survey in this same area of continuous ground subsidence: 1. June-December, 1956—53 repairs to mains and services; 2. January-May, 1957—mains survey and repairs; and 3. June-December, 1957—37 repairs to mains and services.

The results obtained in Swadlincote were sufficiently encouraging to warrant an extension of this method, and in the division we now employ a team of seven men continuously on survey work. This team surveys

some ten miles of mains each week and they have concentrated on the mining areas where most of the damaged mains are found and where most benefit can be obtained. To the end of February, 1959, we had surveyed 816 miles of mains and we have subsequently carried out 4,100 repairs. The problems we found include the difficulty of dealing with the peak of repair work as a result of carrying out the survey at this rate—this has been overcome by employing contractors working on a schedule of rates—and making good the test holes in road and footpath surfaces; we are now filling these with a mixture of dry cement and limestone granules held in a watering can.

A portable compressor is towed behind a light vehicle to provide air for the road drill used to make the survey holes. The vehicle has to move continuously but slowly to keep up with the drill operators and we have had much trouble with clutch failure; to overcome this, two gear boxes have been fitted in series on the transmission of a vehicle so that very slow speeds can be obtained which allow the drill operator to work in front of, and in full view of, the driver, but the vehicle can travel to site at a normal speed.

Accuracy of Consumers' Meters

In view of the steady rise in the figures for unaccounted-for gas, it was considered advisable to examine large consumers' meters to see whether these were in any way responsible. We decided to test all meters of one particular type and for this purpose we obtained two 1,200 meters fitted with large dials; one of these meters was connected in series with the meter on test. Those meters which were outside the permissible limit were submitted to the meter examiner for official test, with the following results:

Meter No.	*Annual Consumption*	*In situ*	*Ministry of Power*
1.	47,823,600 cu. ft.	8·1% S	8·5% S
2.	1,388,100 ,, ,,	5·2% S	3·8% S
3.	1,383,500 ,, ,,	9·1% S	3·8% S
4.	7,715,900 ,, ,,	9·1% S	5·7% S
5.	1,005,400 ,, ,,	4·8% S	4·7% S
6.	—	3·8% S	Inside tolerance
7.	37,946,600 ,, ,,	Not registering on 1200 meter	8·8% S
8.	—	9·0% S	Inside tolerance
9.	1,580,300 ,, ,,	4·3% S	11·7% S

Testing Industrial Meters

The figures justified an extension of testing large industrial consumers' meters *in situ* and we have since started to test all the tin cased meters of 3,000 cu.ft. per hour capacity. So far the number of these meters found to be in error is as follows:—

Number exceeding permissible tolerance: Fast 2.

Number exceeding permissible tolerance: Slow Nil.

Number not exceeding permissible tolerance: Fast 16.

Number not exceeding permissible tolerance: Slow 8.

The results of this last series of tests have proved to be better than anticipated, and it does not appear that defects in industrial meters are a major cause of unaccounted-for gas. This position has probably been improved by the systematic scrapping of all meters of more than an agreed age when these are brought in for repair.

It is encouraging to report that the rising trend of unaccounted-for gas appears from the following figures to have been halted:

9 months ended	31.12.55	unaccounted	for	8.4%
,, ,,	31.12.56	,,	,,	10.0%
,, ,,	31.12.57	,,	,,	11.3%
,, ,,	31.12.58	,,	,,	11.1%

(Gas used on works and bulk transfers to other divisions have been excluded in calculating these results.)

I do not like to pay too much attention to figures for nine-month periods, but these are the latest comparable figures available, and it is difficult to say how much the improvement is due to the two measures I have described.

Loss of Gas from Services

One of the next steps must be to deal with leakage from services. During the past three years we have connected a test meter to 364 services which were about to be renewed and measured the amount of leakage taking place. The majority of the services tested were laid more than 30 years ago, but these represent a large proportion of all services at present in use. The amount of leakage per service averaged 1.8 cu.ft. per hour which, if typical of all services of this age, would represent an annual loss of 1,500 mill. cu.ft. in the Notts. and Derby Division.

This leads to the question of the type of materials used for services. Bare steel tube has given way to wrapped steel tube for most purposes, but tests carried out on the quality of tube protection are not entirely encouraging and it seems probable that, unless some form of protection physically strong enough to withstand damage can be developed for protecting steel tube, other alternatives will have to be considered.

In the past both lead and copper services have been laid and we have recently examined a number of copper services laid 25 years ago; these were in excellent condition except at the point where a ferrous fitting had been used to connect the copper service to the cast iron main. Similarly, lead services laid more than 50 years ago have been examined and are in good condition. In recent years, steel services have been cheaper to lay, but in view of the relatively short life of steel services compared with copper and lead services, it is doubtful if any real economy has been obtained over a long-term period by using steel; now that the cost of copper has dropped to a reasonable level, serious consideration must be given to its extended use for services.

Plastic Tubing

Recently there have been big developments in the production of plastic tubing but so far no one has been prepared to use plastic tubes extensively for underground gas services. Plastic tubes are liable to become deformed under pressure but the risk in this respect does not seem to be any worse than with copper or lead services. The unknown factor with plastic tubes is the effect of certain constituents of town gas on the plastic, and also the effect of age. At present the price of plastic tube is not appreciably less than other materials, but if it was used extensively for services then the price might fall considerably. However, it would still be only really attractive provided we could be assured of prolonged life.

GAS ON THE CONTINENT

Corrosion Tests of Buried Pipes

GEOPHYSICAL methods of prospecting and of exploration of the soil have been used for some time. In the hope of utilising this knowledge for corrosion problems of buried pipes, the Thyssen gas and water works of Duisburg-Hamborn have co-operated with a specialist firm, the Seismos Company of Hanover. The main outcome of this work has been a new method which can be used to pin-point corroded sections by means of potential measurements along the ground.

Geophysical resisting surveys are based on the establishment of the soil resistivity by means of a four-point electrode system, and the Seismos Company has developed equipment which furnishes this reading without complicated calculations. If the resistivity fluctuates during a survey along a pipe line, the existence of a diffusion contact potential may be suspected.

As corrosion can take place only on the anode, *i.e.*, where a current leaves the metal to enter the soil, the potential of the latter must always be lower than that of the pipe at any corroded spot. The new method can be applied only if d.c. can be fed into the pipe line and if, at about 330 yards distance from the pipe, current can be fed into the soil. One electrode probe is moved along the soil over the pipe line, readings being taken every 7 ft., and the second probe is driven into the soil at a suitable distance from the pipe line.

All instruments are mounted on a motor vehicle and 3,000 ft. of pipe line can be surveyed from one setting. Provided the metallic pipe is covered with a protective insulation, the readings will furnish a record of all spots where the insulation is defective and where corrosion is taking place, together with an indication whether the pipe line section concerned is cathodic or anodic. It is admitted that the cathodic protection of a pipe line is generally the most economical method, provided the preliminary investigations have been carried out with care and by experts.

There are, however, cases where cathodic protection is either very expensive, as in urban areas, or where other service pipes are present, or even impossible. In these cases the new method would be indicated. Two to three men are needed for the survey team, and the length of pipe line which can be checked in one day may be taken as 6,500 ft. Faulty spots are marked and a trench is dug later, so that the defects can be remedied. —*G. Eingrieber. Das Gas- und Wasserfach. Vol. 100. No. 7. February 13, 1959, p. 157, 5 pp., 3 ff, Bib.*

Stuttgart Municipal Gasworks

IN the biennial statement of the Stuttgart municipal gasworks covering the years of 1956 and 1957, steady expansion is reported in most sectors. During the winter months of 1957, the new oil gasification plant, with a daily capacity of 2.12 mill. cu.ft., was in constant operation to meet the peak demand. Two new coke-oven batteries of 20 chambers each replaced three old batteries. The total length of mains and distribution pipes in the city area was increased to 696 miles and in the outlying districts to 340 miles; 3,464 new services were added, to bring the number of the existing services for the city area to 46,005, and for the outlying districts to 17,794.

Although the sales of town gas increased from 8,048 mill. cu.ft. in 1956 to 8,154 mill. cu.ft. in 1957, coal consumption fell from 665,300 tons to 607,000 tons, the production of coke from 25,707 to 25,614 tons, while crude benzole production increased from 5,136 tons to 5,484 tons and ammonia production from 749 tons to 756 tons. During the exceptionally cold weather in February, 1956, 517 tons of oil were added to the coal. The oil consumption in the oil gasification plant rose from 843 tons in 1956 to 2,037 tons in 1957.

In spite of the smaller production, the stocks of coke rose during 1957, mainly because both dealers and consumers had accumulated large stocks themselves, due to the mild winter of 1956-57. The coke from the Ruhr collieries also appeared in competition and the third reason was the trend towards oil heating, specially for business premises; 44.6% of the gas was sold to domestic consumers. Losses due to leakage and metering fell in 1957 to 3.6%.

The revenue from gas sales was not enough to cover the costs, because of the slump in coke sales. The price of gas, which had remained unchanged for five years had, therefore, to be raised in the middle of 1958. An important factor is the financial results in the ratio of the price of coal to the price of gas coke. Neither of these is under the control of the gasworks. This ratio fell from 1 : 1.3 to 1.4 in earlier years, to 1 : 1.1 in 1957, and the gasworks had to adjust their carbonisation schedules to produce a maximum of gas and a minimum of coke per ton of coal.

The rapid expansion of the city of Stuttgart after the war is reflected in the large sum of capital invested in the gas distribution network. This is stated to amount to £8.45 mill. The great fluctuations in demand for gas are illustrated by the fact that during the cold winter of 1956 every additional drop of temperature by 1°C. meant a rise in gas consumption of 600,000 cu.ft. per day. To make the available plant capable of meeting such peaks, additional capital investment has been necessary.—*Geschäftsberichte der Technischen Werke der Stadt Stuttgart, 1956 and 1957, 7 pp., 7 ff., 4 tt.*

British Standards volumes on pyridine

FOUR British Standards for pyridine and related compounds, covering pyridine (B.S. 3096/7) of 99% and 90% minimum purity and pyridine bases (B.S. 3098/9) (90/160) and (95/180) have been published in two volumes by the British Standards Institution.

A note in the foreword of the standard for pyridine bases (90/160) indicates that this quality has been approved by the Commissioners of H.M. Customs and Excise for use as a denaturant in the manufacture of mineralised methylated spirit and industrial methylated spirit (pyridinised) under The Methylated Spirits Regulations.

Copies of these standards may be obtained from the British Standards Institution, Sales Branch, 2, Park Street, London, W.1, B.S. 3096/7 Price 4s. 6d., B.S. 3098/9 Price 5s.

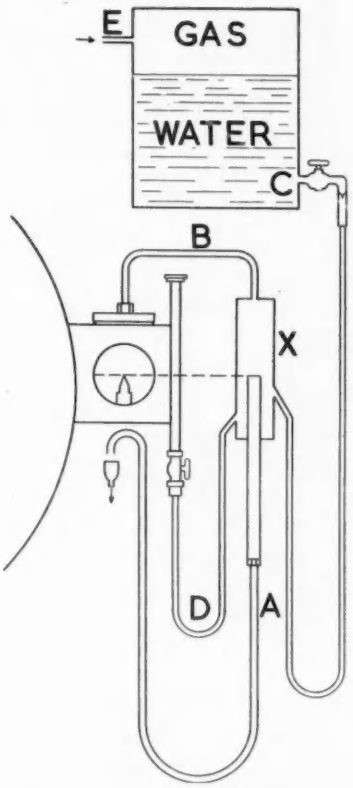
Constant Water Level Device for Calorimeter Meter

THE apparatus shown on the accompanying drawing has been designed to prevent variations in the height of the water level in the gas meter used in conjunction with a Fairweather recording calorimeter. Such variations can be caused by changes in the specific gravity of a mixed gas stream, resulting from the intermittent inclusion of a relatively heavy gas or gases with the base load coal gas. The intermittent addition of peak load oil gas (sp. gr. 1.00) for example, can produce an error of as much as 0.5 to 1.0% in the recorded calorific value of the mixture.

The device consists essentially of a weir contained in an equilibrium tube (x). This weir, which is slightly bevelled inwardly, is connected to an overflow pipe (a) leading to a funnel and thence to waste. The connection (b) is an equilibrium tube attached to the top of the meter sight box. The supply of water (c) from the reservoir fitted above the meter casing, is fed through micro drip feed contained in a sight glass. A flow of about 30 c.c. per hour has been found to be satisfactory. A reservoir of greater width than depth is preferred in order to minimise reduction in flow rate due to a decreasing head. The equilibrium tube is connected to the meter sight box cock by the pipe (d), while gaseous conditions above the water in the reservoir are provided by means of a connection (e) between the top of the reservoir and the governor by-pass cock.

Careful measurements are necessary to ensure correct alignment with the meter cone. Probably a threaded tube and lock nut in the equilibrium tube box would be useful for final adjustment.

The device can be made in the laboratory.—*Contributed by W. A. Voss and W. J. Rice, Southend Works, North Thames Gas Board.*



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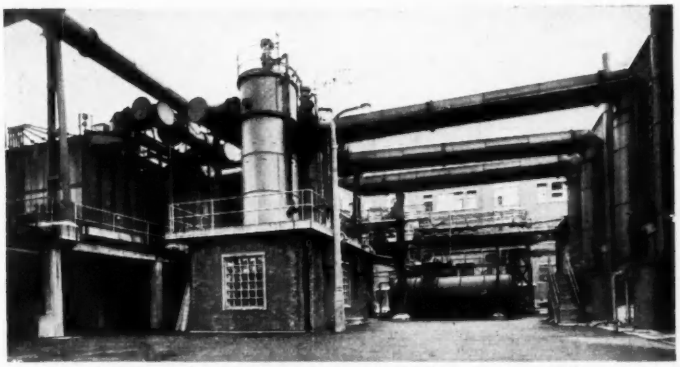

The riveted steel mains shown in the illustration were erected by us at Bromley-by-Bow Gasworks.

Photograph by courtesy of the North Thames Gas Board.

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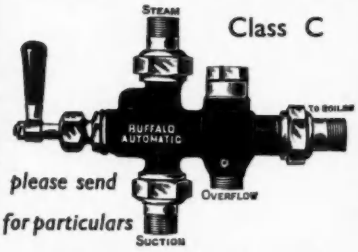

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WALES GAS BOARD

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THE following steam engines are available for disposal and may be inspected by arrangement:—

No. 4206 Bryan Donkin Compound Steam Engine having 17 in. diameter High Pressure Cylinder and 22 in. diameter Low Pressure Cylinder. 300 B.H.P. Steam Pressure 100-180 lbs. per sq. inch exhausting to atmosphere—415 R.P.M. Date of manufacture approximately 1950.

No. 9721 Belliss & Morcom Compound Steam Engine having 18½ in. diameter High Pressure Cylinder and 21 in. diameter Low Pressure Cylinder. 295 B.H.P. Steam Pressure 120 lbs. per sq. inch exhausting to atmosphere—325 R.P.M. Date of manufacture approximately 1943.

Tenders for the plants should be submitted to the undersigned.

A. H. DYER,
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AGENCIES

MESSRS. McLUSKY & BLINCOE, Bardon Chambers, Infirmary Street, Leeds, 1. (Tel.: Leeds 28264) have been appointed Agents to F. A. BORCHARDT LTD., for the North Eastern Gas Board area, the Sheffield and Rotherham division and the Northern part of the Lincolnshire division of the East Midlands Gas Board, for the sale of DRUgasar Balanced Flue Heaters and the "Arnhem" Freestanding Closed Heating Stove.

APPOINTMENTS VACANT

EAST MIDLANDS GAS BOARD
LEICESTER AND NORTHANTS DIVISION

LEICESTER GROUP
FIRST CLASS GASFITTERS

FIRST Class Gasfitters are required at the Leicester and Loughborough Undertakings. Rate of Pay 4s. 11d. per hour. Accommodation available at reasonable rent. Applications giving age, qualifications and experience to be addressed to reach Divisional General Manager, Millstone Lane, Leicester, not later than May 31, 1959.

SCOTTISH GAS BOARD

APPLICATIONS are invited from suitably qualified persons for an appointment as Assistant Site Engineer in the Chief Engineer's Department under the control of the Board's Distribution Engineer.

The duties will be to assist the Site Engineer generally in the progressing, site supervision and control of work connected with construction by contractors of the Board's pipelaying projects involving *inter alia* the construction of an extensive welded steel pipe grid.

Applicants should have experience in the supervision of pipelaying projects, and previous experience of high pressure welded steel pipelines whilst not being essential would be a considerable advantage.

Salary on a scale £733 to £813 per annum, with initial placing according to qualifications and experience.

The post is pensionable and the successful applicant will be required to pass a medical examination.

Applications, stating age and giving details of education, training, qualifications and experience, together with the names of two referees, should be sent to the undersigned within fourteen days of the appearance of this advertisement.

A. T. HERD,
Secretary.

26, Drumsheugh Gardens,
Edinburgh, 3.

THE SCOTTISH GAS BOARD
GLASGOW AND WESTERN DIVISION
Motherwell District
TECHNICAL ASSISTANT

APPLICATIONS are invited for a post as Technical Assistant at Motherwell Gas Works.

Candidates should be experienced in the operation of vertical retorts and carburetted water gas plant and possess or be studying for a Higher National Certificate in Gas Engineering or in Chemistry.

The post which is pensionable will be remunerated within Grade A.P.T. 6, Provincial A, £664-£744 per annum, with placing therein according to experience and the successful applicant will require to pass a medical examination.

Facilities for Further Study are available under the Board's Education and Training Scheme.

Applications marked 'TA/M,' stating age and giving particulars of education, training, qualifications and experience, should be addressed to **The Personnel Officer, Dept. GJ., 9, George Square, Glasgow, C.2** not later than May 25, 1959.

WEST MIDLANDS GAS BOARD
AREA CHIEF CHEMIST'S DEPARTMENT

VACANCY FOR
ASSISTANT CHEMIST

A VACANCY exists for an Assistant Chemist in the Area Laboratory, Birmingham.

The duties will be concerned initially on specialised coal tests developed in the Laboratory, but subsequently the person appointed will be expected to work in other sections.

Candidates should possess the Higher National Certificate or Intermediate B.Sc. in Chemistry.

The salary for the appointment, which is pensionable and subject to medical examination, will be within Grade A.P.T. 7 (£733-£813 per annum) of the National Salary Scales for Gas Staffs.

Applications, giving details of age, education, qualifications and experience, together with the names of two referees, should be addressed to the Industrial Relations Officer, West Midlands Gas Board, 6 Augustus Road, Edgbaston, Birmingham, 15, **to reach him not later than May 30, 1959.**

J. SWAN,
Secretary to the Board.

AGENT REQUIRED.—Must be fully experienced in laying of high and low pressure gas mains and services. Capable of organising labour, negotiating with Engineers, submitting reports, etc., and be cost conscious. Vehicle provided. Reply giving qualifications, outline of previous experience and salary required to Managing Director, Box No. 36 *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.